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## STATUS OF WATERFOWL IN 1934

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### INTRODUCTION

Between the statement that "there are more ducks than there ever were" and the theory that migratory waterfowl are becoming extinct, as are the passenger pigeon and the heath hen already, are some incontrovertible facts that deserve careful consideration by sportsmen and conservationists. This year's investigations by the Bureau of Biological Survey have disclosed new facts of fundamental importance.

In North America the great natural migratory-waterfowl breeding grounds once reached as far south as central Nebraska; but this year the excessive drought has practically eliminated all breeding in the area south of a curving line that extends across the Prairie Provinces of Canada. Technically qualified observers who spent the spring and early summer in the breeding region north of the drought district reported that even under ideal conditions—where food, water, and cover were ample—the number of ducks nesting was far below normal. Estimates of these numbers ranged from 70 percent to as low as 10 percent of the normal carrying capacity of the breeding grounds in various regions. The mallards, pintails, and the Canada geese, whose adaptability makes their breeding grounds practically unlimited, may be able to weather the present crisis, and the black ducks, though ranging less widely, may be considered in the same class. Other species with limited breeding grounds, however, present a situation that calls for thoughtful consideration.

The present reduced numbers of both ducks and geese are in sharp contrast to the incalculable numbers that 50, or even 25, years ago reared their broods in the innumerable marshes and sloughs of the Western States and in the vast well-watered regions of Alaska and Canada. Reduction in the numbers of North American waterfowl came on somewhat gradually over a period of years, as the human

population increased, settlement advanced, more effective guns and ammunition were produced and used in larger and larger quantities, and means of rapid travel became common. Associated with, and a part of, these developments, vast drainage projects became the vogue. Some of these were successful in making available fertile lands for the production of agricultural crops, while on the drained sites of other extensive marshlands were spread great cities and vast summer-residence properties. Other extensive drainage operations, which failed to accomplish their economic purposes, further seriously cut down the areas that produced waterfowl.

### THE EFFECT OF PROTRACTED DROUGHT

A long period of deficient precipitation over hundreds of thousands of square miles of the finest breeding territory in the North Central States and the southern parts of the Prairie Provinces of Canada began in 1915. With the exception of a slightly increased rainfall in 1920, this shortage continued till 1934, when all available records for duration of time, extent of territory affected, and severity of drought conditions were broken. Serious drought conditions have arisen periodically throughout recorded history, always doubtless working hardships upon the waterfowl. But never, so far as is known, have there been so many destructive conditions and agencies at work at once upon a depleted waterfowl supply as during the past 5 years. During that period the numbers of waterfowl have fallen drastically. The support and interest of all public-spirited citizens are now needed to repair the damage.

### MAPPING BREEDING REGIONS

In order to assist the interested public in visualizing the present unfavorable situation as a basis for effective action looking to the perpetuation of an adequate and satisfactory waterfowl supply, the series of maps presented herein has been prepared to show the principal breeding grounds of the more important species and the areas in the United States and Canada over which they are hunted for sport. The range as outlined in each case shows the region where the bulk of the bird population is raised; many outlying breeding areas of minor importance are therefore omitted. Similarly, the shooting is confined to areas between the dotted lines that are suitable for waterfowl occupancy.

The part of each breeding range shown in solid black on the maps indicates the portion that has been eliminated as an important producing area as a result of the cumulative effects of recent drought years. Limited areas within the drought-stricken regions are of course favorable as regards water, food, and cover, and in such places the birds have continued to breed, and in some of them, from surrounding dry areas, have even concentrated in considerable numbers, though in others only in limited numbers. On the whole, however, the areas shown in black are now unproductive of any worth-while numbers.

Maps of breeding grounds in relation to drought and of the regions where shooting for sport is carried on are here given for the following species (listed alphabetically for ready reference):

	Figure	Page
American eider ( <i>Somateria molissima</i> )	21	17
American goldeneye ( <i>Glaucionetta clangula</i> )	19	16
American widgeon ( <i>Mareca americana</i> )	9	11
Black duck ( <i>Anas rubripes</i> )	7	10
Blue goose ( <i>Chen caerulescens</i> )	5	9
Blue-winged teal ( <i>Querquedula discors</i> )	12	12
Brant ( <i>Branta bernicla</i> and <i>B. nigricans</i> )	2	7
Bufflehead ( <i>Charitonetta albeola</i> )	20	16
Canada goose ( <i>Branta canadensis</i> )	1	7
Canvasback ( <i>Nyroca valisineria</i> )	17	15
Cinnamon teal ( <i>Querquedula cyanoptera</i> )	13	13
Gadwall ( <i>Chauliasmus streperus</i> )	8	10
Green-winged teal ( <i>Nettion carolinense</i> )	11	12
Lesser scaup ( <i>Nyroca affinis</i> )	18	15
Mallard ( <i>Anas platyrhynchos</i> )	6	9
Pintail ( <i>Dafila acuta</i> )	10	11
Redhead ( <i>Nyroca americana</i> )	15	14
Ring-necked duck ( <i>Nyroca collaris</i> )	16	14
Ruddy duck ( <i>Erismatura jamaicensis</i> )	24	18
Shoveler ( <i>Spatula clypeata</i> )	14	13
Snow goose ( <i>Chen hyperborea</i> )	4	8
Surf scoter ( <i>Melanitta perspicillata</i> )	23	18
White-fronted goose ( <i>Anser albifrons</i> )	3	8
White-winged scoter ( <i>Melanitta deglandi</i> )	22	17

### INVESTIGATION PROGRAM

Many interesting features have been brought to light regarding conditions existing on the waterfowl breeding ranges through the carefully conducted investigations of the past several years, including the intensive field studies made by experienced naturalists of the Bureau of Biological Survey during the spring of 1934. The work of these men was supplemented by reports from several hundred observers recruited from the ranks of sportsmen, naturalists, and game officials, both in the United States and Canada. Compilation of the data from all sources shows that an alarming decrease in nearly all species has taken place during the past few years.

In the United States 1,164 qualified observers, including State game officials, sportsmen, and ornithologists, submitted data in which the numbers of waterfowl present in the winter of 1933-34 were compared with those present in 1932-33. The numbers of observers who reported an increase, a stationary condition, or a decrease in 16 important species are given in table 1.

TABLE 1.—*Status of game waterfowl—comparison of conditions in 1933-34 with those in 1932-33*

Species	Observers reporting—			Species	Observers reporting—		
	Increase	Same	Decrease		Increase	Same	Decrease
Canada goose	14	18	19	Shoveler	9	20	21
Mallard	23	42	32	Redhead	9	15	48
Black duck	15	20	16	Ring-necked duck	3	8	12
Gadwall	6	13	25	Canvasback	17	20	33
Pintail	26	43	26	Scaups (2)	17	24	38
Green-winged teal	13	30	32	American goldeneye	9	13	8
Blue-winged teal	17	19	28	Bufflehead	5	7	15
				Ruddy duck	8	10	23

The same data used in table 1 are in table 2 expressed in percentages of observers who reported on general waterfowl conditions in the five sections of the United States that present differing topography.

TABLE 2.—*Comparison of waterfowl conditions in 1933-34 with those of 1932-33, by sections of the United States*

Section	Number of observers reporting	Percentage of observers reporting—		
		Increase	Same	Decrease
Atlantic.....	323	27	36	37
Mississippi.....	311	24	39	37
Great Plains.....	206	13	28	59
Rocky Mountains.....	183	21	32	47
Pacific.....	141	13	27	60
United States.....	1,164	21	34	45

The same data are again presented in table 3 in terms of numbers of observers, with reference to the birds' major flyways in the United States, the figures obviously dividing themselves into two distinct groups—the Atlantic and Mississippi flyways in one, and the central (which includes the Great Plains and Rocky Mountain sections of table 1) and the Pacific in the other.

TABLE 3.—*Comparison of waterfowl conditions in the four major flyways of the United States in 1933-34 with those of 1932-33*

Flyway	Observers reporting—			Flyway	Observers reporting—		
	Increase	Same	Decrease		Increase	Same	Decrease
Atlantic.....	86	117	120	Central.....	43	88	171
Mississippi.....	74	123	114	Pacific.....	41	65	122

In any analysis of the data shown in tables 1 to 3, it should be borne in mind that conditions of 1933-34 are compared, not with those in a normal year, but with those obtaining in 1932-33—a season marked by an alarming scarcity in our stocks of waterfowl. The last two columns of table 2, added together, show that a majority of the observers reported conditions either no better or worse than in the previous year. The last column alone shows a positive decrease in the total waterfowl population from every section. Thus 1934 witnessed a situation that dwarfed even the almost hopeless case of 1933. A fair-minded study of the data shows the necessity of throwing all possible safeguards around the threatened species.

#### SIGNIFICANT FEATURES OF THE MAPS

A study of the breeding maps shows that while the drought has seriously affected the breeding grounds of the mallard, the pintail, and the widgeon, there yet remain vast areas of favorable breeding range in northern Canada. It will be noted also that the large breeding range of the black duck, chiefly in northeastern Canada, was practically unaffected by drought, and there were few other adverse

factors. This helps to account for the relatively favorable position now held by these species.

On the other hand, certain species of ducks, including the canvas-back, redhead, lesser scaup, ringneck, gadwall, shoveler, blue-winged teal, cinnamon teal, and ruddy, have had a large percentage of their best breeding range practically eliminated by drought and settlement. It is thus readily apparent that these birds are now suffering a serious natural handicap, and therefore are not in position to withstand the heavy inroads upon their numbers made by modern hunting practices. This in part accounts for their rapid decrease in recent years.

Heavy losses of young ducks occurred in the drought-affected regions during 1931 and 1933. A considerable supply of surface water had accumulated in shallow marshes, sloughs, and lakes, which led the migrating birds to nest in such places. Later in the season excessively hot, dry weather quickly dried up the surface water, and the young ducklings perished in great numbers. During the spring migration in 1934, little water remained in these shallow depressions because of the limited rainfall of the preceding several months; so the majority of the birds probably passed over these areas and went on to the well-watered areas farther north.

Of far-reaching significance, however, is the conviction, as a result of studies by the staff of the Biological Survey, that the present favorable breeding ranges in the United States and in Canada are not now occupied by nesting birds in numbers anywhere nearly approaching their potential capacity. Despite the destruction of breeding grounds by drought, drainage, and agriculture, the numbers of birds remaining are not sufficient to stock adequately the favorable breeding country in northern Canada. This suggests the necessity of practical means by which the waterfowl population may be built up to a reasonable degree of abundance. To make clear what follows, the area is briefly discussed.

#### CANADIAN BREEDING GROUNDS

In that part of the Canadian breeding grounds that lies north of the region where agriculture on a profitable scale is possible, is an enormous area in which during many centuries a vast waterfowl nursery has been built up naturally. On the far-flung plains of northern Canada (for example, the region covered by the breeding range of the mallard—fig. 6, p. 9) the grinding glaciers through the centuries of the ice age gouged out depressions and dumped the debris in positions that were later to determine the location of myriads of lakes. Some of these lakes are hundreds of miles long, and there are innumerable smaller ones, some of them mere puddles. Originally some were hundreds of feet deep; others were shallow. As the ice melted, new drainage systems were gradually built up. Where large rivers entered a shallow lake, deltas were formed.

In the meantime a new flora, starting with the mosses and lichens, began to clothe the land that lately had been covered by a waste of ice. As time passed the vegetative cover grew more luxuriant and diversified. Where the lakes were shallow, plant growth encroached, creating bogs. Conditions for precipitation were favorable, and nature was lavish in the production of food. In the course of centuries a waterfowl population was built up that probably was not surpassed anywhere in the world. And in this condition the first

white explorers found this country when they reached it scarcely 150 years ago.

Since then the more temperate sections in the United States and southern Canada have been built up with towns and cities, which are supported by the agriculture that is in part responsible for the devastation of the ducks' breeding grounds and which furnish also the most powerful enemy the birds have ever known—millions of well-equipped hunters. No wonder the waterfowl have decreased alarmingly!

It cannot be too strongly emphasized that in the great northern region, immense areas of the finest waterfowl breeding grounds remain in virtually primitive condition and await only a sufficiency of breeding stock. About 85 percent of the waterfowl of North America are in fact now raised north of the Canadian line and for the most part north of the drought area.

#### RESTORATION MEASURES

By applying to the problem of restoration of wild fowl even a little of the science, intelligence, and energy that have been used in their decimation, those vast favorable breeding areas can be repopulated with the numbers of waterfowl that the country can maintain. It is necessary to spare from the flocks that each winter visit the United States a sufficient stock to populate those idle breeding grounds of the North, now scarcely a tenth occupied. This is the major task in waterfowl restoration, as waterfowl numbers can be maintained and built up only by natural reproduction from living parent stock. Refuges and improved management practices in the United States will help greatly, and to this end a vast program of inviolate waterfowl refuges where these harassed birds can feed, rest, and breed undisturbed is being carried forward by the Bureau of Biological Survey and other cooperating Federal and State agencies and by public-spirited citizens.



FIGURE 1.—The breeding range of the Canada Goose includes those of various related forms, including the cackling and Hutchins's geese. The birds nest in suitable places throughout, but are rare or absent over extensive regions, especially at high altitudes and in heavily forested areas. In all the region south and west of the north end of Lake Winnipeg, the breeding grounds have been much affected adversely by settlement, agricultural operations, and periodical droughts. The birds winter principally in the Pacific Coast States from Washington southward, in the Atlantic Coast States from Maryland southward, in the Mississippi Valley from Illinois southward, in the Gulf States, and in Mexico. This goose is a migrant in suitable places throughout most of the continent. It is subject to shooting for sport over those parts of its breeding, migration, and wintering ranges that lie in the United States and southern Canada and in limited places in Alaska.

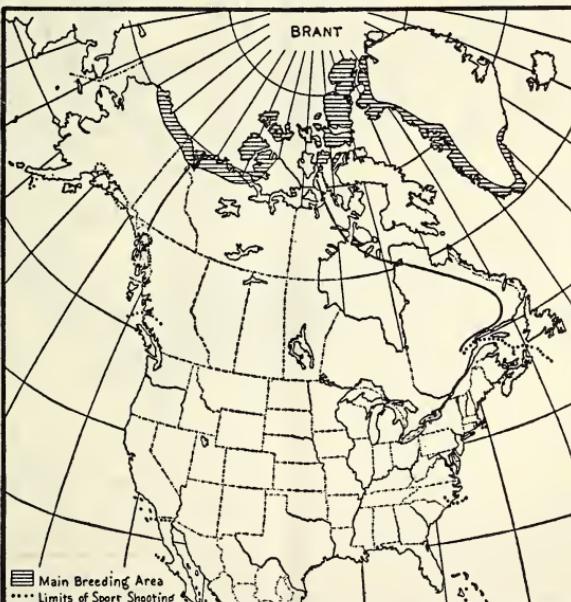


FIGURE 2.—Combined breeding ranges of eastern and western species of brant. The birds nest only in certain suitable areas, and are rare or absent in the interior of the larger Arctic Islands. Brant are shot for sport only in their wintering areas on the Atlantic and Pacific coasts, mainly in the United States, and in small detached areas in Alaska. In 1933, the season was closed on the Atlantic coast. Both species prefer to remain on the seacoast, and pass over the land in only a few places. They are thus absent from the interior of the country, as partially indicated by the solid lines in Canada.



FIGURE 3.—The white-fronted goose nests only in restricted places within its general breeding range. It winters principally in the coast regions of Oregon, California, Louisiana, and Texas, and in Mexico. It occurs in fall migration in suitable places in all the Western States, and is subject to shooting for sport throughout the United States west of the Mississippi River, in the southern parts of Manitoba, Alberta, Saskatchewan, and British Columbia, and in smaller areas in Alaska. The solid line marks approximately the eastern boundary of its range.



FIGURE 4.—Combined breeding ranges of eastern and western forms of the snow goose. The birds nest only in scattered areas, mainly near the seacoast. Snow geese winter mainly along the west coast of the United States and on the coast of Louisiana and Texas. Formerly the most easterly breeding birds wintered in numbers on the Atlantic coast from Maryland to South Carolina. Snow geese migrate through the interior, stopping only at favorable feeding places. They are shot extensively for sport on the wintering grounds, in many places in the western interior, and in detached areas in Canada and Alaska. The race that frequents the eastern coast is now reduced to a few thousand individuals, and its shooting in the United States is forbidden.

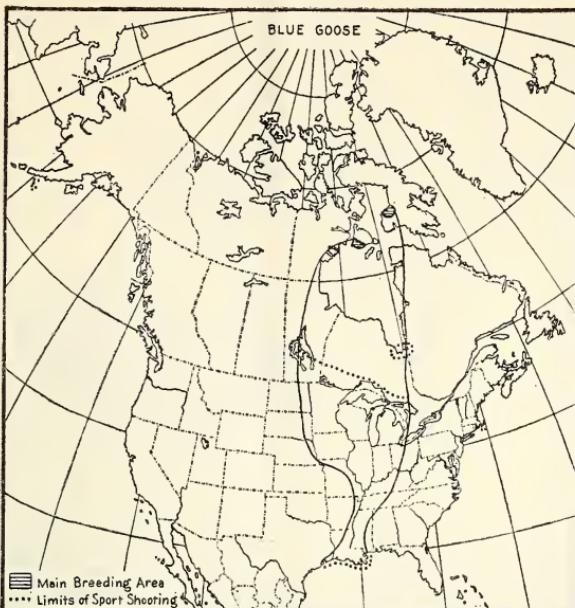


FIGURE 5.—The blue goose is known to breed only in two restricted areas, one on Baffin Island and one on Southampton Island, both north of Hudson Bay. Many migrate down the east coast of Hudson Bay to James Bay, and thence almost directly to the wintering grounds on the coast of Louisiana and eastern Texas. The birds are shot for sport mainly on their wintering grounds, as they seldom alight elsewhere during migration south of James Bay. They are shot also to some extent on James Bay, and in the Great Lakes region west of Lake Erie. The solid lines enclose the main migration path of the species.



FIGURE 6.—The mallard has probably a more extensive breeding range than any other North American duck and nests in suitable places throughout this great region. The area south and west of the north end of Lake Winnipeg has been much affected adversely by settlement, agricultural development, and periodical droughts. The species winters mainly in the Pacific-coast region from southern British Columbia southward, in the Southern States, and to some extent even farther south, and in the Atlantic Coast States from Massachusetts southward. This bird is subject to shooting for sport over all the southern half of its breeding range, throughout its continental migration range, on its principal wintering range within the United States and Canada, and in the smaller areas indicated in Alaska and Canada.



FIGURE 7.—Within its broad breeding range the black duck nests only in suitable places, and is scarce in the northeastern area. It winters in the Atlantic-coast region from Maine southward, in the Gulf-coast region, and in the Mississippi Valley from Illinois southward. The species is subject to shooting for sport over the southern part of its breeding range, and in its entire migration and winter ranges. The solid line marks its western boundary.



FIGURE 8.—The gadwall nests only in favorable places over its breeding range, but the number of such places is now much reduced throughout by settlement, agricultural development, and periodical droughts. This duck winters in the Pacific-coast region from Oregon southward, on the Atlantic coast from Maryland southward, in the Gulf States and the lower Mississippi Valley, in the Southwestern States, and in Mexico. The bird is subject to shooting for sport over the entire area from southern Canada southward, and therefore over practically its entire breeding, migration, and wintering areas north of Mexico.



FIGURE 9.—The baldpate, usually called widgeon, nests only in suitable places throughout its breeding range, and is absent from the more elevated areas. Nesting south of latitude 55° is greatly restricted by agricultural operations, settlement, and periodical droughts. The bird winters in the Pacific-coast region from southern British Columbia southward, on the Atlantic coast from Maryland southward, in the Mississippi Valley north to Illinois, in the southern tier of States, and in western Mexico. The widgeon is subject to shooting for sport over the southern fourth of its breeding ground and its entire migration and wintering ranges within the United States and southern Canada. The solid line marks its western limit in Canada.



FIGURE 10.—The pintail, commonly called "sprig," closely rivals the mallard in the extent of its breeding range, nesting in suitable places throughout, excepting in the more elevated parts. Actual breeding in the region south and west of Lake Winnipeg is now much reduced by settlement and agriculture and by periodical droughts. The bird winters in the Pacific-coast region, in southern California, and southwestern Arizona, in the Atlantic-coast region from Maryland southward, in the Gulf States, in the Mississippi Valley south of Illinois, in Arkansas, Louisiana, and eastern Texas, and in parts of Mexico and Central America. It is subject to shooting for sport in southern Canada and over most of the United States as well as in smaller detached areas in Alaska and Canada.



FIGURE 11.—The green-winged teal nests in suitable places throughout the breeding range, but is absent from high altitudes. Isolated breeding records are not included. Breeding areas in the region south and west of the north end of Lake Winnipeg are now much reduced by settlement, agricultural development, and periodical droughts. The bird winters in the Southern States, in the Pacific and South Atlantic coastal areas, and in Mexico. This teal is subject to shooting for sport over much of southern Canada, and nearly throughout the United States, as well as in smaller areas in Alaska and Canada—that is, over its entire breeding, fall-migration, and wintering ranges between latitude 54° and the northern boundary of Mexico.



FIGURE 12.—The blue-winged teal nests in suitable places throughout its breeding range; many isolated records outside this area are disregarded. The region south and west of the northern part of Lake Winnipeg, extending as far south as the central part of the United States, has long been affected very adversely by settlement, agricultural development, and periodical droughts. The bird winters in Florida, in the coastal region of South Carolina, Georgia, and the Gulf States, in southern Texas, in Mexico, and southward. This teal is subject to shooting for sport over nearly all its breeding area, as well as over most of its migration routes and wintering grounds within the United States and Canada.

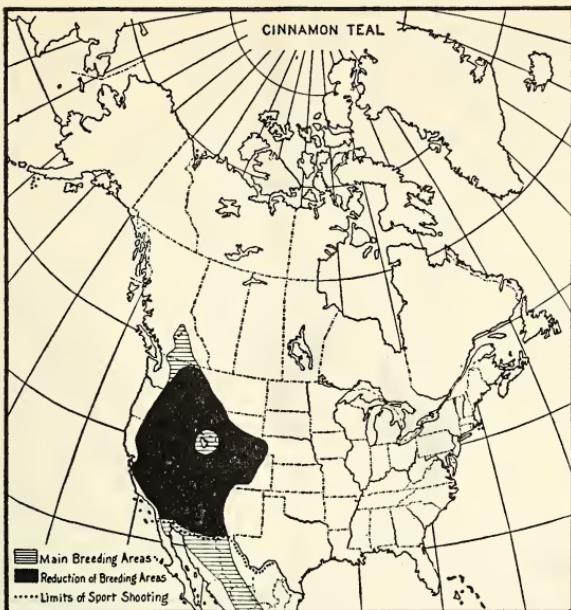


FIGURE 13.—The cinnamon teal nests only in suitable places within its breeding range; the number of these places has long been much reduced by settlement, agricultural operations, and periodical drought. The bird breeds also over the higher parts of Mexico. It winters sparingly in the Southwestern States, but principally in Mexico. It is subject to shooting for sport over practically all its breeding and wintering ranges within the United States and Canada.



FIGURE 14.—The shoveler, or spoonbill, nests in suitable places but nowhere abundantly throughout the range here shown. That part of the breeding grounds south and west of the northern end of Lake Winnipeg has been much affected adversely by settlement, agriculture, and periodical droughts. The bird winters in the Pacific-coast region from southern Washington to California, in southern Arizona, in the Atlantic- and Gulf-coast region from North Carolina to Texas, and over most of Mexico. The shoveler is subject to shooting for sport in the southern part of the western Canadian Provinces and over most of the United States—that is, over the larger part of its North American breeding and migration ranges, and in that part of its winter home that is within the United States.



FIGURE 15.—The redhead nests only in suitable places throughout its breeding range. Within this range, except in the northern part, its actual breeding places are now much reduced by settlement, agricultural operations, and periodical droughts. The bird winters in the Pacific-coast region from northern Washington to southern California, in the Atlantic-coast region from New Jersey to northern Florida, in the Mississippi Valley from Kentucky southward, in the Gulf-coast region west to southern Texas, and in western Mexico. It is subject to shooting over the southern part of western Canada and most of the United States—that is, over most of its breeding range, over its extensive migration range, and especially on its wintering grounds in the South and in the Pacific Coast States.



FIGURE 16.—The ring-necked duck (sometimes called ringbill) has one of the most restricted nesting areas of all North American ducks, and one that has been much affected by settlement, agricultural developments, and periodical droughts. The bird winters in the Pacific-coast region from southern British Columbia to southern California, in the Atlantic- and Gulf-coast region from Virginia to Texas, in the Mississippi Valley north to Illinois, and in central Mexico. The ringneck is subject to shooting for sport in the southern part of the western Canadian Provinces and over most of the United States—that is, over most of its breeding grounds, throughout its extensive fall-migration range, and especially on its wintering grounds.

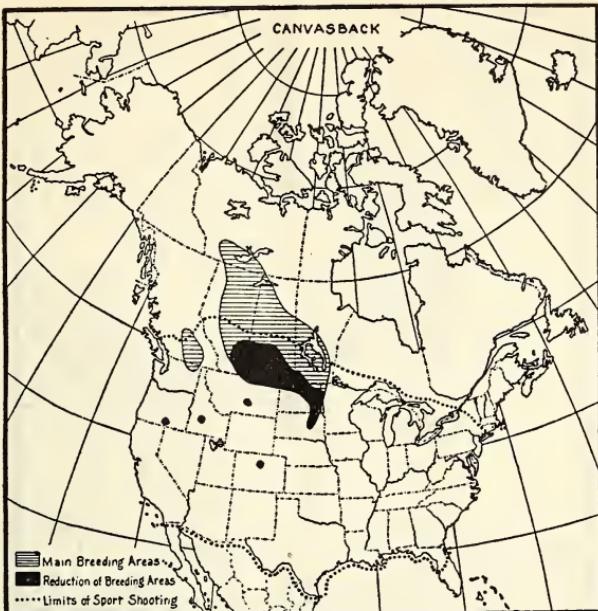


FIGURE 17.—The canvasback nests in suitable places throughout its breeding range, but in all the region south and west of the north end of Lake Winnipeg such places are now much reduced by settlement, agricultural operations, and periodical droughts. There are a few small detached breeding areas in the West. The bird winters chiefly in the Atlantic- and Gulf-coast region from New Jersey to Texas, in the Pacific-coast region from British Columbia to southern California, and to some extent in southern Mexico. In winter it concentrates mostly in Chesapeake Bay, Md., and southward to North Carolina. The canvasback is subject to shooting in southern Canada and over much of the United States—that is, over half of its breeding range, over all its migration range, and in its wintering areas on both coasts.



FIGURE 18.—The lesser scaup's breeding range includes in its northern part the main range of the greater scaup also. Nesting in that part lying west and south of the north end of Lake Winnipeg is now much restricted by settlement, agricultural developments, and periodical droughts. This bird winters mainly in the Pacific-coast region from southern British Columbia to southern California, in southwestern Arizona, on the Atlantic and Gulf coasts from southern New England to Texas, in the Mississippi Valley north to southern Illinois, and in restricted places in Mexico, Central America, and the West Indies. The scaups are subject to shooting for sport in the southern part of western Canada and over practically the entire United States, and in small areas in Alaska. Thus the shooting grounds include a part of the breeding range, the great fall-migration area, and especially the wintering grounds in the United States.



FIGURE 19.—The American goldeneye has a rather extensive breeding range, even excluding scattered records. Since this bird usually nests in hollow trees, it breeds for the most part only in heavily timbered areas about lakes or streams. Large areas in the North are therefore not occupied, and south of about  $53^{\circ}$ , settlement has reduced greatly the number of suitable places. The species winters chiefly in the Pacific-coast region from British Columbia south to southern California, on the Atlantic coast from Maine southward, on the Gulf coast, and in the Mississippi Valley north to Wisconsin. This bird is subject to shooting for sport in southern Canada and throughout most of the United States, and also in smaller areas in Alaska and Canada—that is, in the southern part of its breeding area and throughout its migration and wintering ranges.



FIGURE 20.—The bufflehead, or butterball, nests in suitable places throughout its breeding range, but such places have been much reduced in the region south and west of the north end of Lake Winnipeg by settlement, agriculture, and periodical droughts. The bird winters mainly in the Pacific-coast region south of latitude  $60^{\circ}$ , in the southern part of the United States, and on the larger rivers throughout the Eastern States south of the Great Lakes. The species is subject to shooting for sport nearly throughout southern Canada and the United States, as well as in smaller areas in Alaska—that is, over the southern third of its breeding range, throughout its migration range, and in its extensive winter range.



FIGURE 21.—The American eider nests only locally, always near salt water, throughout its breeding range, and is rare in the southern parts of this area. The species is shot for sport mainly on its wintering grounds along the coast of New England and the southern coast of New Brunswick and Nova Scotia, and also on the small isolated area on Hudson Bay.



FIGURE 22.—The white-winged scoter nests in suitable places, usually rather scattered, throughout its breeding range. The southern area has been much affected adversely by settlement, agricultural operations, and periodical droughts. The bird winters chiefly on the Pacific coast of the United States and on the Atlantic coast from Maine to South Carolina. This scoter is subject to shooting for sport mainly in southern Canada and the northern part of the United States, on the east and west coasts of the United States, and in Alaska and Canada. The shooting area thus includes the southern part of the bird's breeding range, its migration routes to its salt-water wintering grounds, and (of most importance) its winter habitat.



FIGURE 23.—The surf scoter nests only in certain places, chiefly about rock-bordered lakes, within its breeding range. The species winters mainly on the Pacific coast from southern Alaska to Lower California, and on the Atlantic coast from Nova Scotia to North Carolina. To reach their wintering grounds the birds migrate more or less directly from the breeding grounds in the interior to salt water, and are thus rare or absent over the entire interior part of the country bounded by solid lines. The surf scoter is shot for sport mainly on the Atlantic and Pacific coasts of the United States and in the smaller areas indicated in Canada and Alaska.



FIGURE 24.—The ruddy duck nests only in suitable places within its breeding range. Its nesting areas have been much reduced in recent years over the entire range south of latitude 54° by settlement, agricultural developments, and periodical droughts. The bird winters in the Pacific-coast region from southern Oregon to southern California, in the Atlantic- and Gulf-coast region from Massachusetts to Texas, and over much of central Mexico. The species is shot for sport in the southern part of the western Provinces of Canada and over most of the United States—that is, over most of the breeding range (that part which has suffered most), over the extensive migration range, and on much of the wintering grounds.



